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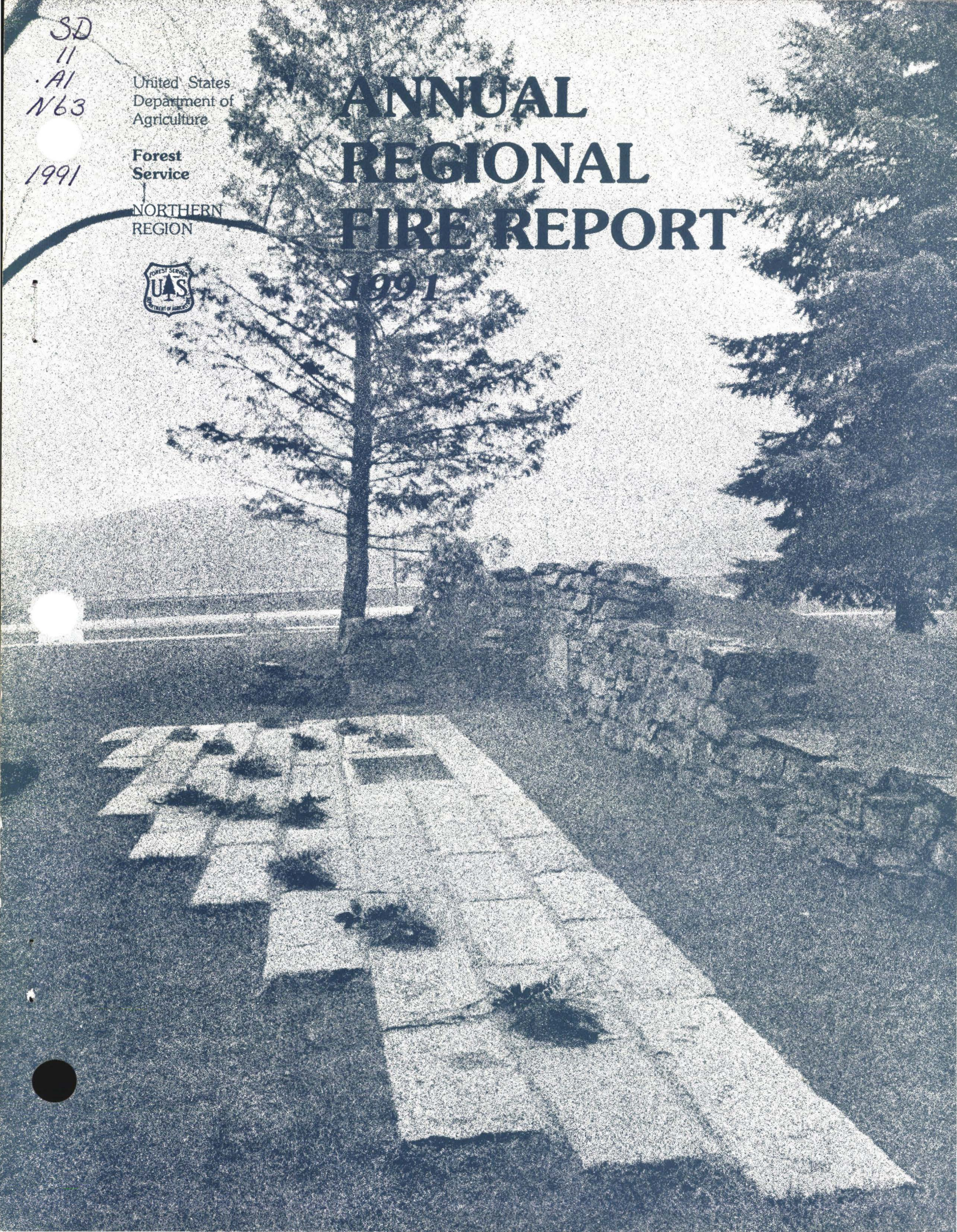
United States
Department of
Agriculture

**Forest
Service**

NORTHERN
REGION

ANNUAL REGIONAL FIRE REPORT

1991



During 1991, the following people retired after a long association with Aviation and Fire Management. We wish them the best:

Wayne Smetanka	Custer National Forest
Charlie Wark	Custer National Forest
Cap Vietenheimer	RO Aviation and Fire Management
K. R. Adams	Lolo National Forest

IN MEMORIUM

William Martin, Nez Perce Smokejumper, was killed on May 31, 1991, while making an evaluation jump of the Bureau of Land Management Ram-Air smokejumper parachute in order to evaluate its performance under the conditions normally encountered by Forest Service smokejumpers. The accident occurred at the Aerial Fire Depot.

On October 16, 1991, a Lockheed P3 Orion aircraft, Tanker 24, owned and operated by Aero Union of Chico, California, crashed while enroute to Missoula, Montana, to support fire suppression activities. The crew--John Sieglinger, pilot, and Robert Shaw, co-pilot--were fatally injured.

THE COVER

The National Wildland Firefighters Memorial was dedicated at the Aerial Fire Depot, Missoula, Montana, on May 8, 1991. The Centennial of the Forest Service, 1991, was a fitting time to honor the many men and women nationwide who died fighting wildland fires. Memories of these individuals and their tragic deaths have remained alive with family, friends and fellow firefighters for many years.

5100

Missoula, Montana

December 1991

NORTHERN REGION

ANNUAL REGIONAL FIRE REPORT

CALENDAR YEAR 1991

JAMES F. MANN
Director, Aviation and Fire Management

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GENERAL

The dry fall of 1990 resulted in most heavy fuels of the Northern Rockies going under snow without regaining any moisture. Consequently the stage was set for an active 1991 fire season. Early summer rains held most activity to initial and extended attack until mid-July when project-size fires began to occur. The lack of late August precipitation allowed fire season to continue into the fall, with significant large fire activity occurring in mid-October.

Mobilization of regular forces was generally successful and the availability of extra forces funded through the severity process enabled units to catch numerous fires at the "B" and "C" size class. This degree of success could not have been achieved without the supplemental forces.

Severity forces included the early mobilization of smokejumpers and jumper aircraft to meet national and local situations. At West Yellowstone, an air tanker and lead plane were made available by late July. Two Type II helicopters were added in the Region which flew nearly 400 hours. Twenty additional handcrews were trained by several units to supplement normal crew strength in the West.

The Northern Rockies Coordination Center mobilized nearly 10,000 people this year in spite of a large number of personnel on administrative hold. The total number of 1888 overhead requests were filled, of which 535 came from outside of the Northern Rockies through NICC, and 1083 were mobilized internally. There were 270 people sent to incidents in other Areas, primarily Alaska (162 overhead), Intermountain (24 overhead), and Rocky Mountain (21 overhead). There were 420 crew orders filled through the NRCC for a total of 7,939 people. Of that number, 144 crews came from outside the Area to support fires burning within the Northern Rockies, and 246 crews were mobilized internally. Thirty crews were sent to fires outside of the Area, primarily to the Intermountain Area (16 crews), and to the Rocky Mountain Area (9 crews).

Highlights:

Dedication of the National Wildland Firefighters Memorial at the Aerial Fire Depot.

Acquisition of three WCF aircraft in 1991--a turbine-powered DC-3, a Shorts 3-30 (Sherpa), and a King Air 200.

Revision of the 20-year old agreement with Burlington Northern Railroad.

Development and implementation of a new international fire agreement between British Columbia and Regions 1 and 6. Development of local operating plans for the involved Forests (Idaho Panhandle, Kootenai, Okanagan, Colville).

Continuation of recycling efforts. We recycled close to 80,000 pounds of cardboard. Due to the high quality of our cardboard, Montana Recycling takes our bales directly to Stone Container, the largest cardboard recycler in the Nation. Not only does recycling cardboard and paper eliminate waste in our landfill, but it reduces our garbage hauling costs. We will continue to recycle cardboard and paper and hope to expand to glass and plastic next year.

Finalized Interagency Mobilization Guide which was approved by our wildland firefighting partners (Bureau of Indian Affairs, Bureau of Land Management, National Park Service, and States of Montana, Idaho, and North Dakota). The Mobilization Guide contains preparedness levels to which all agencies agreed.

Developed and implemented the Region 1 Chainsaw Training and Certification Program.

Provided Standards For Survival Training to all firesite employees. The Region expanded the requirement from **fireline** to **firesite**. This extension covered all contractors and FS personnel that visit the firesite.

Aviation and Fire Management moved aggressively into the issues of new perspectives in forestry, biodiversity, landscape ecology and the role of fire and fire effects. This involves continued interdisciplinary work within the Forest Service, the Universities, and other federal and state agencies and subject matter experts in both the public and private sectors. Pilot projects are underway in each of the three zones within the Region. The pilot projects are designed to integrate fire as a natural element in the land management planning/processes through the integrated applications of landscape ecology designed to attain desired future conditions as outlined in forest land management plans.

The Helena, Beaverhead/Deerlodge and Lewis and Clark tested the Central Zone Support or Central Zone Dispatch developed in 1990. This was very effective and was used on seven incidents this year.

Smokejumpers from the Grangeville Base (Nez Perce NF) jumped 107 fires in 1991. This broke the old record of 102 which stood since 1979. The base was short just three jumps from equalling the 1985 record of 349 smokejumpers dropped in a season.

The Lewis and Clark NF, using its years of experience with the Montana Indian Firefighter Program, contracted through the Regional Office with the BIA to provide basic and special firefighting training to the Blackfeet, Crow, Cheyenne, Fort Peck, Fort Belknap, and Rocky Boy Reservations. The Forest conducted four basic fire training sessions (with over 300 new firefighters attending); three crew boss refresher sessions (with over 90 crew bosses), one crew boss session (50 people), and one crew representative course (40 people).

The Idaho Department of Lands was a valuable asset to the Forest Service this year. They participated in 49 off-district overhead dispatches. Another worthwhile effort was the Interagency Dispatch Center for the St. Maries Ranger District and St. Joe Area Idaho Department of Lands. This operation provided a smooth, well-run interagency initial attack.

WILDLAND FIREFIGHTER MEMORIAL DEDICATION

Arrival of a Ford Tri-Motor plane on May 7 signaled the start of activities planned in conjunction with the public dedication of the National Wildland Firefighters Memorial on May 8. The memorial honors men and women who died fighting wildland fires. The National Wildland Firefighters Memorial was built as a part of the Forest Service Centennial and was financed largely through private contributions of past and present wildland firefighters from around the United States. Special recognition was also given to 13 smokejumpers who died fighting the 1949 Mann Gulch Fire on the Helena National Forest.

The 1929-vintage Tri-Motor plane was flown to Missoula from Oregon by Penn Stohr and Doug Smuin, both former Missoula residents and smokejumper pilots. The Tri-Motor is owned by Evergreen International Airlines and is one of only a few in the world.

The monument is nestled among pine trees on a grassy knoll at the Aerial Fire Depot. It is built of Rock Creek stone arranged in an "L" shape, 10 feet by 30 feet long, and 4-1/2 feet high. Embedded in the earth in front of the monument are squares of granite stonework extending the length of the "L". Dispersed among the stones are 13 square markers displaying the names of the men who died at Mann Gulch. A few feet from the

monument, on the other side of the knoll, is another marker--this one bearing the name of Harry Gisborne, a fire researcher who also died at Mann Gulch (of a heart attack while inspecting the site of the tragedy).

George Leonard, Associate Chief of the Forest Service gave the keynote address at the memorial dedication. Other speakers included Lt. Governor Allen Kolstad; John Mumma, Regional Forester (retired) for the Northern Region of the Forest Service; and Robert Sallee, the only remaining survivor of the Mann Gulch Fire.

FIRE WEATHER SEASON SUMMARY

The 1991 fire season was met with apprehension due largely to the long term drought conditions which plagued much of the Region. The exception was the northwest portion of the Region where record snowfall in December 1990 eased concerns there. A wet spring played a major role in setting the course for the 1991 fire season. Dry conditions were common across much of the Region during the summer and fall months with the exception of southwest Montana which remained wetter than normal. Favorable winds (or lack of winds) following lightning events aided firefighting efforts through much of the season. However, wildfires were fanned by windstorms in October highlighting the season. Finally, autumn snowfalls put an end to the fire season which started late and ended late.

December 1990, January and February 1991

The winter season was cold and generally dry across the Region. Precipitation was 40 to 75 percent of normal in all but the Flathead Forest/Glacier Park areas which was 155 percent of normal. Mountain snowpack ranged from near normal to much above normal across much of the Region with much below normal snowpack in the southwest. Temperatures Region-wide made large fluctuations during the winter months. December temperatures were 6 to 9 degrees below normal, while February's temperatures ranged from 7 to 9 degrees above normal west of the Divide to 12 to 16 degrees above normal east of the Divide.

March, April, May 1991

The spring season had storm systems breaking through a persistent ridge and offering significant amounts of moisture to most of the Region. Precipitation was 100 to 160 percent of normal across the region, except in central Montana where it was only 60 to 75 percent of normal. Spring snows gave some relief to moisture deficits east of the Continental Divide and southwest Montana, but drought remained severe to extreme in southwest Montana (figure 1). Mountain snowpack was 90 to 120 percent of normal across the Region with the Flathead Forest/Glacier Park areas having 125 to 160 percent of normal. Temperatures during the spring were near normal west of the Divide, but were 2 to 6 degrees warmer than normal in central Montana and 9 to 12 degrees warmer than normal across the eastern third of Montana.

June, July, August 1991

Summer began with a persistent moist southerly flow providing much needed precipitation in the form of June showers and thundershowers. Precipitation during June was 130 to 150 percent of normal west of the Divide and 150 to 250 percent of normal east of the Divide. A lush crop of fine fuels remained in their green stage through mid July. Thus, a relatively late start to fire season resulted. June temperatures were 3 to 5 degrees cooler than normal west of the Divide and near normal east of the Divide. Drought severity relaxed during this period (figure 2).

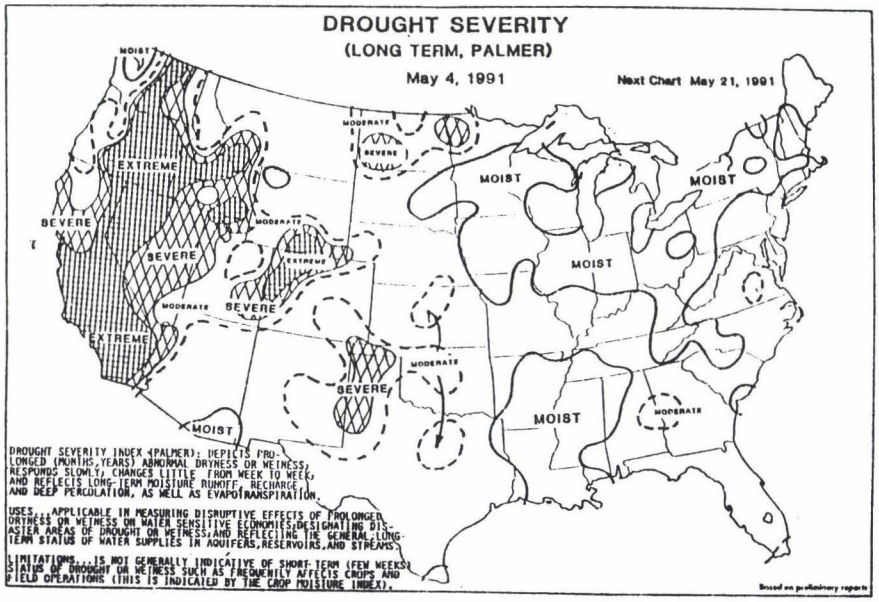

DROUGHT SEVERITY
(LONG TERM, PALMER)
May 4, 1991
Next Chart May 21, 1991
EXTREME
SEVERE
MODERATE
MOIST
DROUGHT SEVERITY INDEX (PALMER): DEPICTS PRO-
LONGED (MONTHS,YEARS) ABNORMAL DRYNESS OR WETNESS;
RESPONDS SLOWLY, CHANGES LITTLE FROM WEEK TO WEEK,
AND REFLECTS LONG-TERM MOISTURE RUNOFF, RECHARGE,
AND DEEP PERCOLATION, AS WELL AS EVAPOTRANSPIRATION.
USES...APPLICABLE IN MEASURING DISRUPTIVE EFFECTS OF PROLONGED
DRYNESS OR WETNESS ON WATER SENSITIVE ECONOMIES,DESIGNATING DIS-
ASTER AREAS OF DROUGHT OR WETNESS,AND REFLECTING THE GENERAL,LONG-
TERM STATUS OF WATER SUPPLIES IN AQUIFERS,RESERVOIRS,AND STREAMS.
LIMITATIONS...IS NOT GENERALLY INDICATIVE OF SHORT-TERM (FEW WEEKS)
STATUS OF DROUGHT OR WETNESS SUCH AS FREQUENTLY AFFECTS CROPS AND
FIELD OPERATIONS (THIS IS INDICATED BY THE CROP MOISTURE INDEX).
Based on preliminary reports

Figure 1.

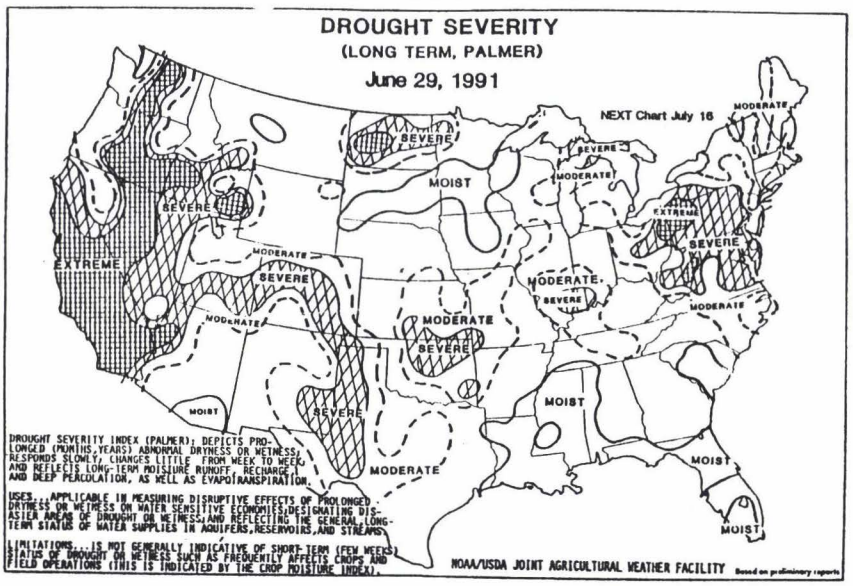

DROUGHT SEVERITY
(LONG TERM, PALMER)
June 29, 1991
NEXT Chart July 16
EXTREME
SEVERE
MODERATE
MOIST
DROUGHT SEVERITY INDEX (PALMER): DEPICTS PRO-
LONGED (MONTHS,YEARS) ABNORMAL DRYNESS OR WETNESS;
RESPONDS SLOWLY, CHANGES LITTLE FROM WEEK TO WEEK,
AND REFLECTS LONG-TERM MOISTURE RUNOFF, RECHARGE,
AND DEEP PERCOLATION, AS WELL AS EVAPOTRANSPIRATION.
USES...APPLICABLE IN MEASURING DISRUPTIVE EFFECTS OF PROLONGED
DRYNESS OR WETNESS ON WATER SENSITIVE ECONOMIES,DESIGNATING DIS-
ASTER AREAS OF DROUGHT OR WETNESS,AND REFLECTING THE GENERAL,LONG-
TERM STATUS OF WATER SUPPLIES IN AQUIFERS,RESERVOIRS,AND STREAMS.
LIMITATIONS...IS NOT GENERALLY INDICATIVE OF SHORT-TERM (FEW WEEKS)
STATUS OF DROUGHT OR WETNESS SUCH AS FREQUENTLY AFFECTS CROPS AND
FIELD OPERATIONS (THIS IS INDICATED BY THE CROP MOISTURE INDEX).
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY
Based on preliminary reports

Figure 2.

Warmer and drier than normal weather followed in July and August as high pressure took control of the weather pattern. Precipitation during July and August was only 40 to 70 percent of normal. Temperatures were near normal west of the Divide and 3 to 8 degrees warmer than normal east of the Divide during this same period.

Lightning was prevalent across the region with the early June storms, but less frequent during July and August. The lack of significant winds following lightning events helped keep lightning starts in check.

September, October, November 1991

The fall season could be characterized as extreme. It was very dry and warm through September and into mid-October with some record high temperatures. Temperatures frequently were 10 to 20 degrees above normal. Fire danger intensified during this period (figure 3). A series of dry cold fronts in mid-October fanned dozens of wildfires through very dry fuels.

These wind events signified a dramatic shift in the pattern from summer-like to winter-like conditions. Record cold temperatures with snow Region-wide closed out October, putting an end to the fire season. Temperatures during the last half of October were 15 to 30 degrees below normal. Precipitation for September and October overall was only 20 to 50 percent of normal across much of the Region. The exception was the southcentral and southeast portions of Montana where precipitation was 100 to 200 percent of normal.

The storm track eventually made its yearly migration south over the northern states in November. Periodic frontal systems migrated through the Region, intermixed with periods of dry high pressure ridges.

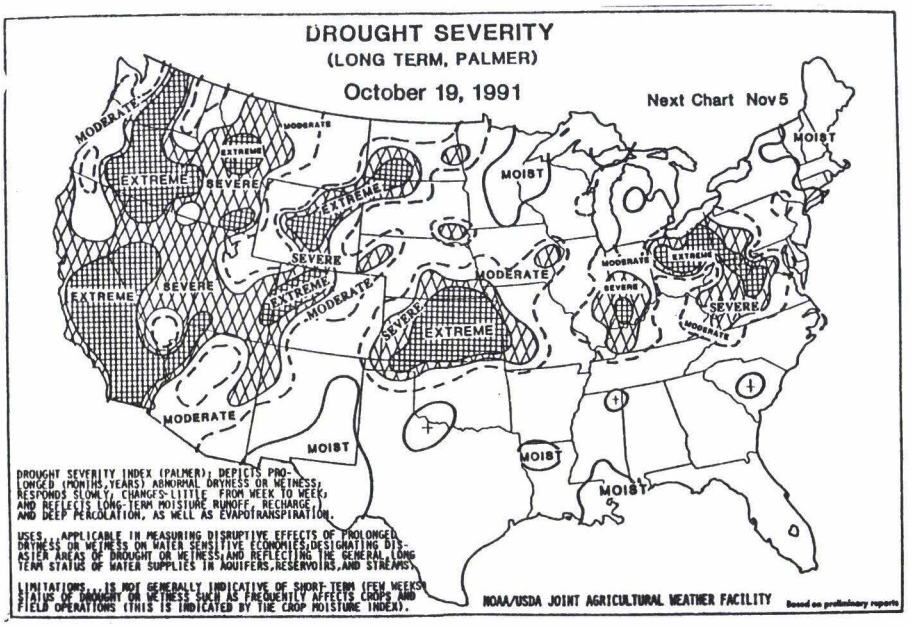

DROUGHT SEVERITY
(LONG TERM, PALMER)
October 19, 1991
Next Chart Nov 5
MODERATE
SEVERE
EXTREME
MOIST
DROUGHT SEVERITY INDEX (PALMER), DEPICTS PROLONGED (MONTHS,YEARS) ABNORMAL DRYNESS OR WETNESS, RESPONDS SLOWLY, CHANGES LITTLE FROM WEEK TO WEEK, AND REFLECTS LONG-TERM MOISTURE RUNOFF, RECHARGE, AND DEEP PERCOLATION, AS WELL AS EVAPOTRANSPIRATION.
USES...APPLICABLE IN MEASURING DISRUPTIVE EFFECTS OF PROLONGED DRYNESS OR WETNESS ON WATER SENSITIVE ECONOMIES, DESIGNATING DISASTER AREAS OF DROUGHT OR WETNESS, AND REFLECTING THE GENERAL, LONG TERM STATUS OF WATER SUPPLIES IN AQUIFERS, RESERVOIRS, AND STREAMS.
LIMITATIONS...IS NOT GENERALLY INDICATIVE OF SHORT-TERM (FEW WEEKS) STATUS OF DROUGHT OR WETNESS SUCH AS FREQUENTLY AFFECTS CROPS AND FIELD OPERATIONS (THIS IS INDICATED BY THE CROP MOISTURE INDEX).
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY

Figure 3.

FIRE WEATHER ACTIVITIES

Weather support to all land management agencies in northern Idaho and Montana was provided by the Missoula and Billings National Weather Service Offices in accordance with published Fire Weather Operating Plans. Daily forecasts were issued for presuppression planning (including NFDRS inputs) from June into mid-October. Regular land management forecasts were available from Missoula during the remainder of the year.

Spot forecasts were issued for wildfires and prescribed fires from February through October. The Missoula Office provided 276 spot forecasts of which 65 were for wildfires. The Billings Office provided 105 spot forecasts of which 91 were for wildfires.

Onsite field support to going wildfires was limited to just two dispatches for Missoula and two for Billings for a total of 32 days.

WILDFIRE STATISTICS

Occurrence

Year	Lightning	Person-Caused	Total
1986	897	230	1,126
1987	562	563	1,125
1988	998	438	1,436
1989	1,168	284	1,452
1990	850	357	1,207
5-year average	895	374	1,269
1991	926	403	1,329

Acres Burned

Year	Lightning	Person-Caused	Total
1986	19,649	1,285	21,034
1987	6,833	12,647	19,480
1988	284,490	309,648	594,138
1989	14,495	3,814	18,309
1990	4,472	13,890	18,362
5-year average	65,988	68,257	143,245
1991	12,731	25,450	38,181

Statistical Causes of Person-Caused Fires

Cause	1986	1987	1988	1989	1990	5-year average	1991
Equipment Use	19	32	50	22	31	31	25
Smoking	23	61	45	26	36	38	41
Campfire	52	218	121	80	105	115	164
Debris Burning	50	104	71	72	76	75	63
Railroad	27	28	30	5	23	23	15
Children	9	12	9	7	9	9	8
Arson	7	12	9	8	11	9	7
Miscellaneous	43	96	93	64	66	72	80
Total	230	563	418	284	357	372	403

Wildfire Occurrence by Size Class

	Class							
	A	B	C	D	E	F	G	TOTAL
LIGHTNING								
1991	638	248	33	1	4	1	1	926
5-year average (1986-1990)	610	244	23	5	5	4	4	895
PERSON-CAUSED								
1991	267	104	14	6	5	6	1	403
5-year average (1986-1990)	233	107	19	6	3	4	2	374
TOTAL ALL FIRES								
1991	905	352	47	7	9	7	2	1,329
5-year average (1986-1990)	843	351	42	11	8	8	6	1,269

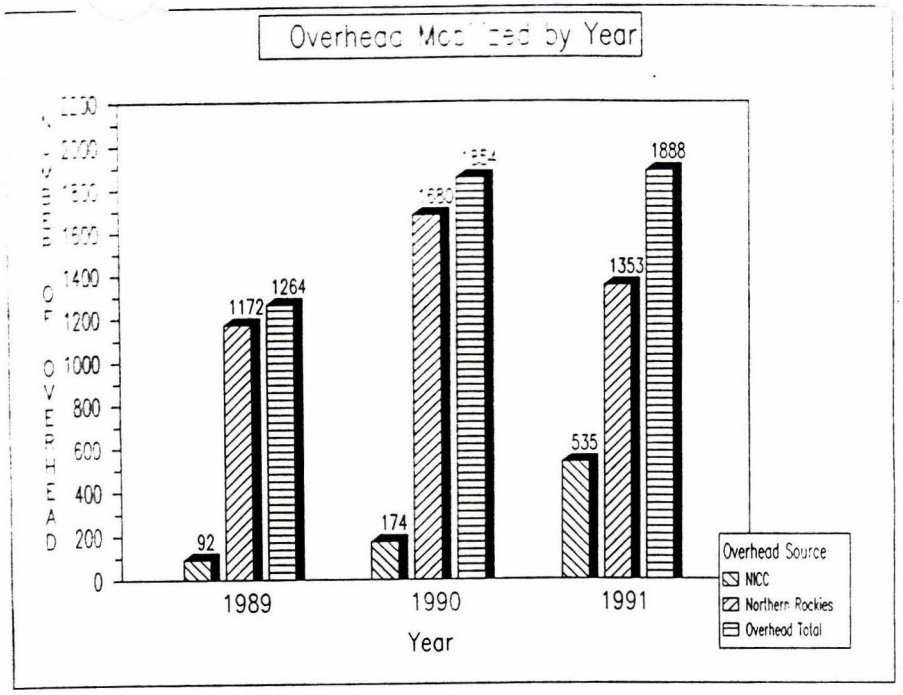
Class A = .25 acre or less
Class B = .26 acre to 9.9 acres
Class C = 10 to 99.9 acres
Class D = 100 to 299.9 acres
Class E = 300 to 999.9 acres
Class F = 1,000 to 4,999.9 acres
Class G = 5000 or more acres

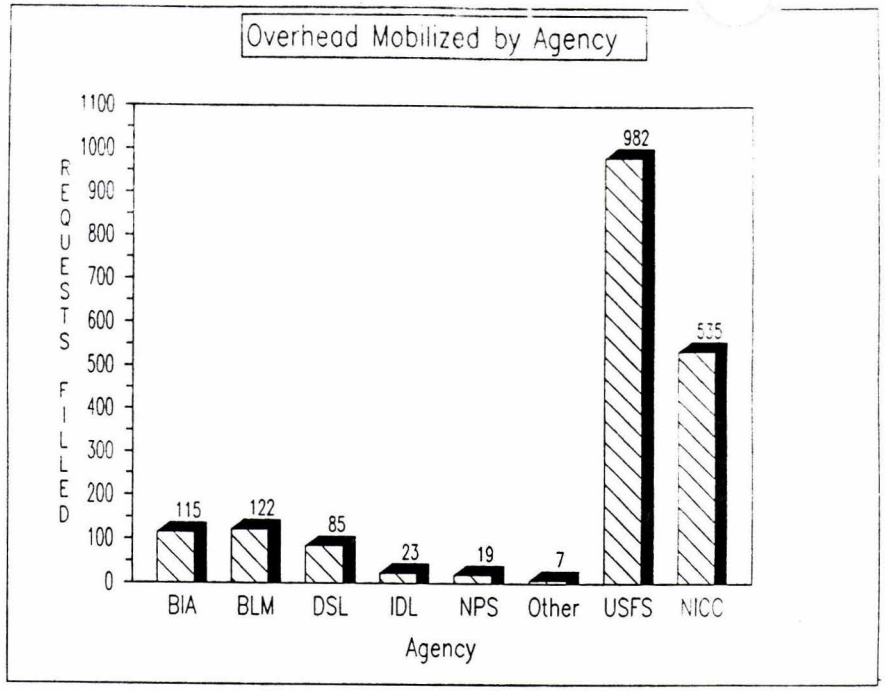
Number of Fires and Acres Burned by Forest

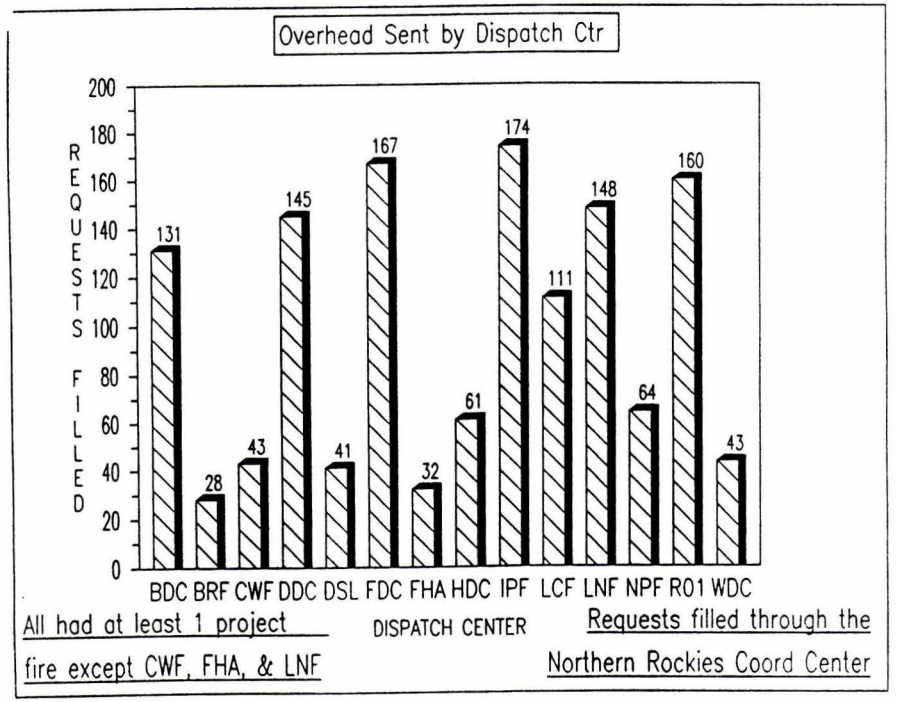
	Number of Fires			Acres Burned		
Forest	Lightning	Person-Caused	Total	Lightning	Person-Caused	Total
Beaverhead	35	14	49	34	11	45
Bitterroot	169	23	192*	2,943	1,890	4,833
Clearwater	102	23	125	75	65	140
Custer	59	11	70	770	3,764	4,534
Deerlodge	30	12	42	43	16	59
Flathead	19	32	51	6	475	481
Gallatin	44	16	60	7,888	1,118	9,006
Helena	25	24	49	10	8	18
Idaho Panhandle	75	47	122	13	2,631	2,644
Kootenai	43	82	125	15	13,240	13,255
Lewis and Clark	31	10	41	708	104	812
Lolo	68	80	148	26	94	120
Nez Perce	226	29	255	200	2,034	2,234
Total	926	403	1,329	12,731	25,450	38,181

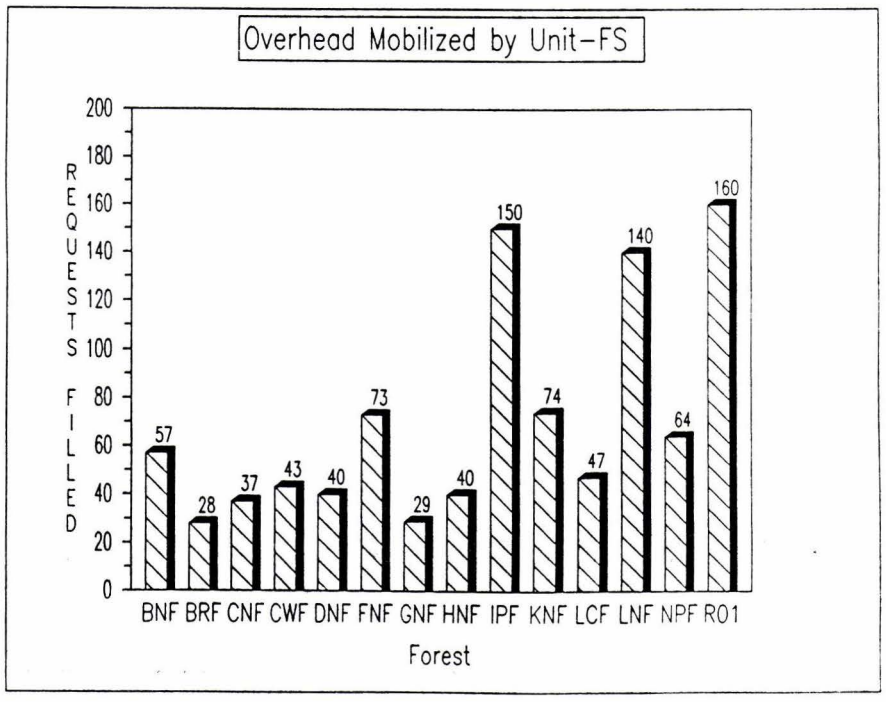
*Total includes 15 fires in the Bitterroot portion of the Frank Church/River-of-No-Return Wilderness. The Nez Perce National Forest took suppression action on all of these ignitions.

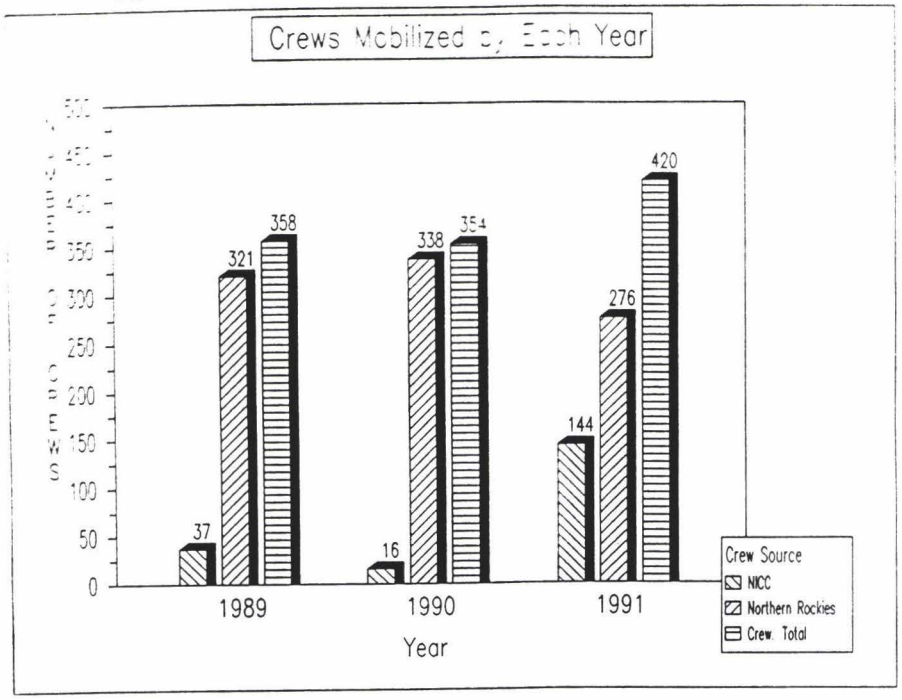
Of the total 38,181 acres burned--35,656 acres were Forest Service land and 2,525 were other lands inside Forest Service Protection

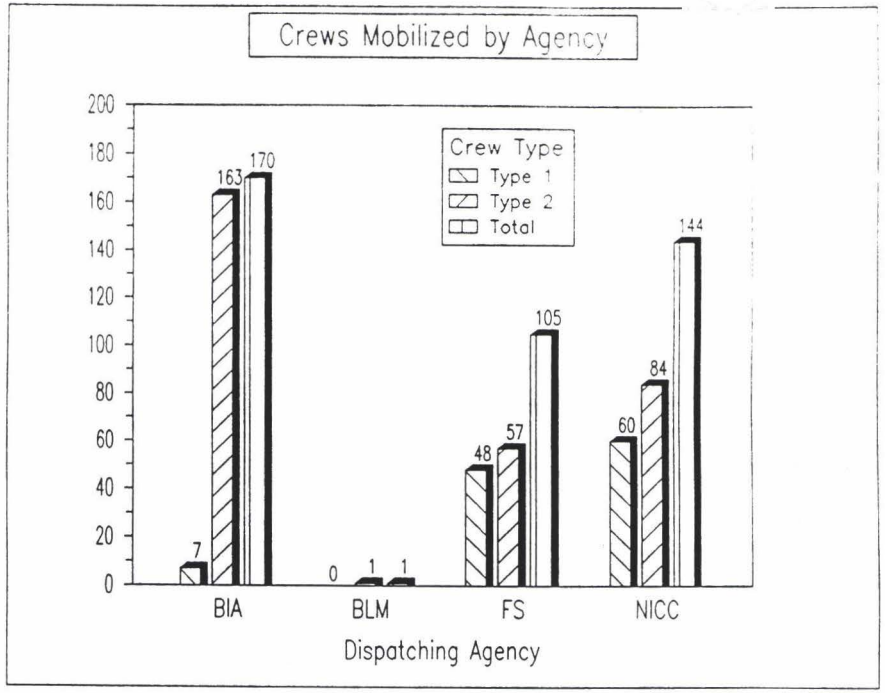

Overhead Mobilized by Year
NUMBER OF OVERHEAD
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
92
1172
1264
174
1680
1854
535
1353
1888
1989
1990
1991
Year
Overhead Source
NICC
Northern Rockies
Overhead Total

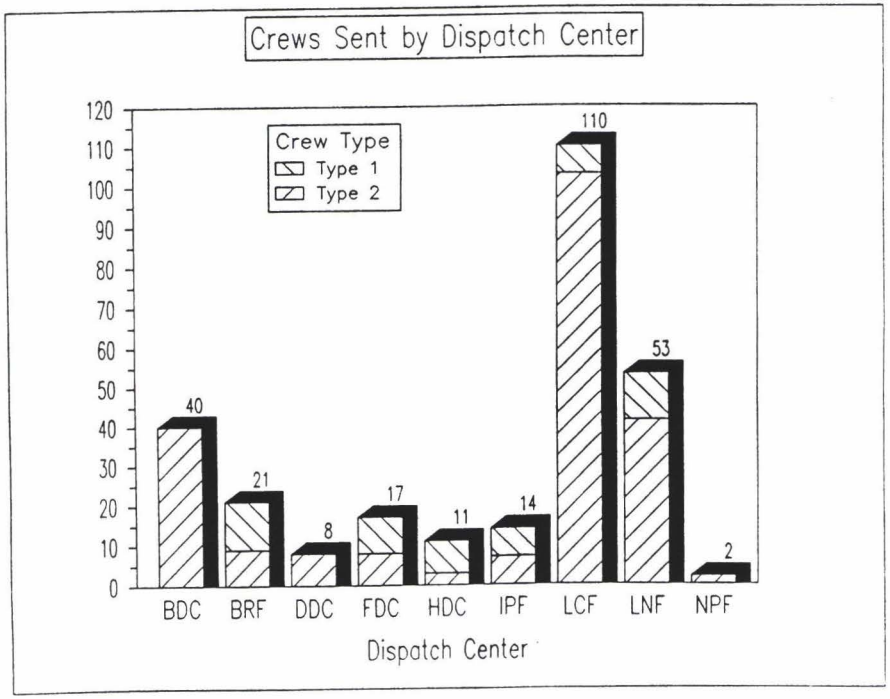

Overhead Mobilized by Agency
REQUESTS FILLED
0
100
200
300
400
500
600
700
800
900
1000
1100
115
122
85
23
19
7
982
535
BIA
BLM
DSL
IDL
NPS
Other
USFS
NICC
Agency

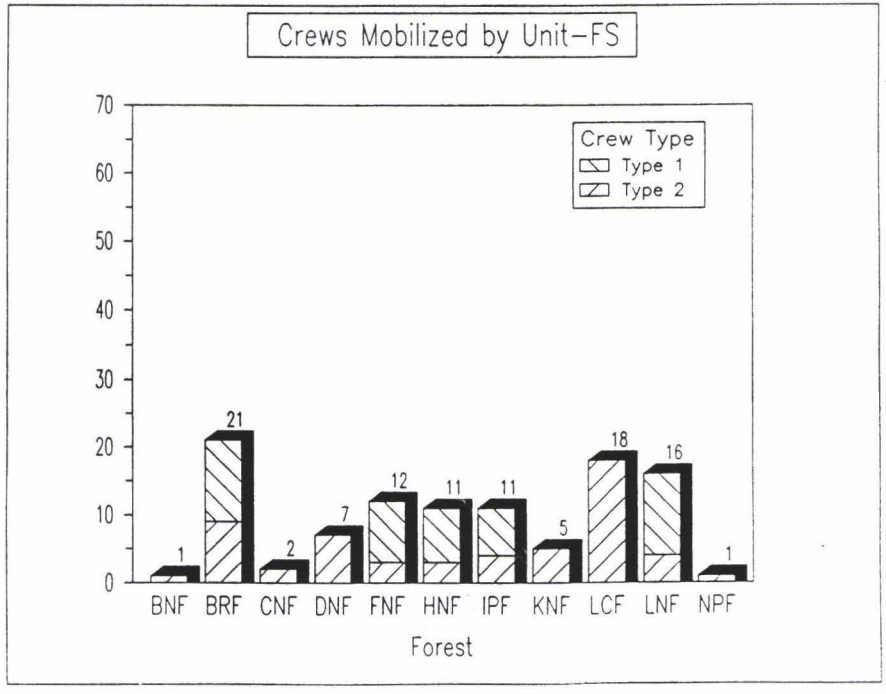

Overhead Sent by Dispatch Ctr
REQUESTS FILLED
0
20
40
60
80
100
120
140
160
180
200
131
28
43
145
41
167
32
61
174
111
148
64
160
43
BDC BRF CWF DDC DSL FDC FHA HDC IPF LCF LNF NPF R01 WDC
DISPATCH CENTER
All had at least 1 project fire except CWF, FHA, & LNF
Requests filled through the Northern Rockies Coord Center


Overhead Mobilized by Unit-FS
REQUESTS FILLED
0
20
40
60
80
100
120
140
160
180
200
57
28
37
43
40
73
29
40
150
74
47
140
64
160
BNF BRF CNF CWF DNF FNF GNF HNF IPF KNF LCF LNF NPF R01
Forest


Crews Mobilized by Each Year
Crew Source
NICC
Northern Rockies
Crew. Total
1989
1990
1991
Year
37
321
358
16
338
354
144
276
420


Crews Mobilized by Agency
Crew Type
Type 1
Type 2
Total
BIA
BLM
FS
NICC
Dispatching Agency
7
163
170
0
1
1
48
57
105
60
84
144


Crews Sent by Dispatch Center
Crew Type
Type 1
Type 2
BDC
BRF
DDC
FDC
HDC
IPF
LCF
LNF
NPF
Dispatch Center
40
21
8
17
11
14
110
53
2


Crews Mobilized by Unit-FS
Crew Type
Type 1
Type 2
BNF
BRF
CNF
DNF
FNF
HNF
IPF
KNF
LCF
LNF
NPF
Forest
1
21
2
7
12
11
11
5
18
16
1

SEVERITY

The utilization of severity funding in R-1 yielded tangible savings by reducing acres burned. Both natural resources and physical improvements were saved. Following are some examples of what severity "bought" in the Northern Region.

-Severity funding allowed recruitment and training for a 20-person handcrew in Red Lodge, MT. This crew spent a considerable amount of time on fire this summer and was an effective initial attack resource for both the Custer and Gallatin NF's.

-A P-3A airtanker was based at West Yellowstone, MT. Including initial attack actions and large fire support, the air tanker flew a total of 46.7 hours dropping 138,000 gallons of retardant. It was particularly instrumental in saving structures on a series of fires on the Crow Agency and the Custer Battlefield.

-The Region hosted two Type II helicopters this summer. Total hours flown for both ships was nearly 400 hours, working project fires and some initial attack. A type III helicopter funded by severity on the Nez Perce NF flew 220 hours mostly on initial attack.

-The Missoula air tanker was brought back on contract in October and funded through severity. It was available on October 16 when a wind driven structure fire at the Missoula Louisiana Pacific Mill escaped into the wildland fuels nearby. A well placed drop stopped the fire in the median on I-90. Ahead of the fire was the Rattlesnake valley which is a developed area of several housing subdivisions near Missoula.

-Smokejumpers were funded by severity in October. The Missoula base made 71 fire jumps on 9 initial attack fires during this period. Several of these actions were on weekends or periods of extended standby.

-Additional crews were funded in Butte, Libby, Grangeville and Wallace. These crews supported large fires throughout the Northwest.

Generally, the success of severity funding is best indicated by the large number of class B and C fires that were contained in short order. More than 400 of these fires were recorded this year.

FIRE USE

Management Ignited Prescribed Fire

The Forests were again limited in their ability to accomplish the fuel treatment targets assigned in FY 91 because of another wetter than normal spring and a much drier than normal fall. This resulted in a significant reduction in the number of burning opportunities from July 1-September 30. Unusually low precipitation amounts during that period prohibited managers from conducting prescribed burning activities at an acceptable level of risk. In spite of the handicap, the Forests were able to accomplish approximately 90 percent of their BD targets and 93 percent of their FFP targets.

North Idaho continued with its new airshed program in 1991 and again used the Montana monitoring unit as a basis for establishing needed restrictions in the fall burning program.

A Gelled Fuel System Operating Guide was developed to improve safe operation of tools like the Terra Torch.

Listed below are the individual accomplishments of each Region 1 National Forest as reported in the Management Attainment Reporting System.

	BD (MAR 16.3)		FFP (MAR 16.2)	
Forest	Target	TSMRS	Target	TSMRS
Beaverhead	200	285	430	201
Bitterroot	1023	1335	740	832
Idaho Panhandle	8407	9810	250	309
Clearwater	4234	3398	300	294
Custer	127	60	700	148
Deerlodge	1666	1493	840	840
Flathead	5700	3849	855	978
Gallatin	591	619	312	312
Helena	1211	1123	775	889
Kootenai	11600	11091	840	925
Lewis & Clark	520	573	1108	507
Lolo	3642	3508	2090	2107
Nez Perce	4860	3619	1470	1596
Totals	45535	40763	10690	9944

Prescribed Natural Fire

In 1991 the Northern Region continued with the prescribed natural fire program in the Frank Church-River of No Return Wilderness, Selway-Bitterroot Wilderness and Bob Marshall Wilderness Complex including the Helena, Lewis and Clark and Lolo NF portions. This was the second year of operational management of prescribed natural fires in the above areas and the level of activity was significantly higher than 1990. Increased participation of wilderness managers in conducting the program was both welcome and appreciated.

Following is a summary of the prescribed natural fire activity in the Selway-Bitterroot and Bob Marshall Wildernesses in 1991. There were no prescribed natural fires in the Frank Church-River of No Return Wilderness this year.

PRESCRIBED NATURAL FIRE PROGRAM SUMMARY

Area	Fire Name	Size	Remarks
Selway-Bitterroot Bitterroot	Baldy Creek Vance Point **Total**	16 Spot **16**	
Selway-Bitterroot Clearwater	Huckleberry Butte Hardtime Cedar Creek Twomile Maple Ridge 1 Maple Ridge 2 Dodge Lake Warm Springs Cedar 16 Big Flat Creek Frog Lake White Sands **Total**	Spot 117 .1 1092 1 .1 Spot 87 25 1566 81 **2969.2**	 Maple Ridge 1 and 2 burned together Declared wildfire on 10/12. Total size 1660 acres.
Bitterroot-Selway (Nez Perce)	Spider Blacktail Battle Maple Ridge 1 Maple Ridge 2 Fox Bear Three Links Saddle Lake Bigfoot Park Spruce Creek Bear Creek **Total**	9 3250 Spot 36 Spot Spot Spot .25 .5 2.5 12 Spot **3310.25**	 Maple Ridge 1 and 2 burned together.
Bob Marshall Flathead	Lime Phil Creek Salmon Forks Little Salmon Pendant Creek Snow Peak Strawberry Creek **Total**	8 756 .25 10 76 1 91 **942.25**	

Total Prescribed Natural Fires	32
Total Acres Burned (Prescribed)	7237.7
(Wildfire)	94
Probable cost as wildfires (32 fires X $4000/fire)	$128,000
Actual Project Cost as Prescribed Natural Fire	$48,600 ($6.71/acre)

Funding by Forest:

Forest	Project $	Acres	FFF $	Acres
Bitterroot National Forest	3400	16		94*
Clearwater National Forest	23500	2969.2		
Flathead National Forest	13000	942.25		
Lolo National Forest	1700			
Nez Perce National Forest	7000	3310.25		
Totals	48600	7237.7		94

* Frog Fire burned onto the Bitterroot NF from the Clearwater NF as a wildfire.

COOPERATIVE FIRE AND PREVENTION

The fire agreement between the Forest Service and Burlington Northern Railroad which had been in place since the 1960's was replaced with a new tripartate agreement between the original parties plus the State of Montana. Since it is almost identical to the one completed with Montana Rail Link two years ago, the Region now has similar arrangements with both major railroads. Also, in the agreement area, the Region and the State Office of the BLM consummated an agreement officially authorizing the fire protection exchange that occurred in 1986 and 1987.

The Region did $1,383,998 worth of Federal Excess Personal Property (FEPP) business with the amounts done by each State as follows: Montana $509,632, Idaho $256,140, North Dakota $618,226. An FEPP review was done in the State of Montana the third week of March with Fran Russ from the Washington Office and Jim Sorenson, FEPP Manager in Region 8, as part of the review team.
Cooperative Fire put on a half day session on dealing with local government officials during urban/wildland interface fires as part of a regional training program titled "Fire Management for Line Officers". Bruce Suenram, Chief of the Missoula Rural Fire Department; Dan Bailey, Zone Fire Management Officer, Lolo National Forest; and Ann Mary Dusault, Missoula County Commissioner, provided their views on interagency fires and fire cooperation.

During the spring, a regional protection map showing all the protection agencies and jurisdictions in the Region was completed at the Aerial Fire Depot. It's purpose is to assist MAC Groups and RICO organizations in determining fire responsibilities and priority assignments.

The Northern Region Coordinating Group (NRCG) conducted its semi-annual meetings, though the October meeting disbanded when major wind event fires broke out in Idaho, Montana and the City of Missoula on the same afternoon. Walt Schopfer of the BLM was the NRCG chairperson this year. The Region and States spent the early part of the year devising a method to distribute Fire Mobilization money, but the efforts were in vain because Congress did not fund the program.

The final touches were made to the Block 5 fire protection exchange with the State of Montana. This Block will be implemented in the summer of 1992 when the State assumes protection on 60,000 acres of land currently protected by the Forest Service. Some of the land belongs to the Forest Service, but the majority belongs to the BLM and is protected by the Forest Service. With the implementation of this block, the 10-year program begun in 1983 to shift 2.5 million acres of state and private land from Forest Service to State protection will be complete.

Interagency Dispatch Centers continued to operate effectively and expedited initial attack dispatches without duplication of forces. Jointly financed helicopters were in place in Kalispell and Helena, and the State of Idaho's cache in Coeur d'Alene supplied all agencies in northern Idaho.

Two national steering committee meetings for the Smokey Sports Program were held. The Region organized an interagency fire prevention group to manage Smokey Sports events and other prevention activities. A 1991 Smokey and the Athletes Poster was printed and distributed. Under the leadership of John Dolan, Gallatin National Forest, two special prevention events were held in conjunction with men and women's basketball games at Montana State University. Special prevention events were also held at baseball games in conjunction with the Spokane Indians, Great Fall Dodgers and Butte Copper Kings. Smokey nights were held at rodeos in Helena, and Great Falls, Montana; and Lewiston and Coeur d'Alene, Idaho.

NORTHERN TRAINING CENTER

The Northern Training Center presented 31 courses to over 1000 trainees in 1991. A Support Dispatcher course and a Fire Management for Local Agency Administrators course were offered for the first time.

Training Program Review recommendations were approved by the Northern Rockies Coordinating Group. These following recommendations are to be implemented October 1, 1992.

1. Add a fulltime Skills Training Specialist to the staff.
2. Add a 1/2 year Receptionist to the staff.
3. Pay instructor travel and per diem.
4. Give equitable credit for course coordination performed by other agency personnel.
5. Compute equal program cost sharing based on allocation of trainee slots.

All the training staff personnel stayed current in their functional area through details and fire suppression assignments. Wayne Cook, Fuels Management Training Specialist, detailed to the Spotted Bear Ranger District from May through September as Resource Assistant.

AVIATION MANAGEMENT

Considerable change occurred in the Regional Aviation Management section in 1991. Rapidly increasing costs coupled with decreasing availability of smokejumper aircraft prompted the Region to search for alternative aircraft options. Through negotiations with the Washington Office, the Region was able to obtain two new WCF aircraft--a turbine-powered DC-3C and a Shorts C-23A. We also entered into an agreement with Region 8 to use their King-Air 200 for 4 months in the summer. These aircraft are operated primarily as smokejumper aircraft during the fire season. The DC-3C will operate year around transporting passengers and heavy cargo during the off-season periods.

Three additional pilots--two full time and one seasonal--joined the aviation staff to crew the aircraft, resulting in a major reorganization of aviation positions.

Region 1 brought the Washington Office Bell 206 B-2 helicopter into the Region during two periods of fire activity. The helicopter went to the Thompson Creek Fire on the Gallatin N.F. in mid July and again in late August on a number of fires in the Lewis and Clark, Gallatin and Bitterroot National Forests. Total flight time was over 40 hours.

Region 1 aircraft flew more than 550 fire missions accumulating over 1100 hours of flight time. This accounts for about 80 percent of the total flight time for the WCF aircraft operated by the Region.

Region 1 has a unique agreement with the State of Montana. The two aviation units work closely together in the fixed-wing and helicopter programs. Through the agreement, state pilots and pilot inspectors attend interagency training and meetings and remain current to inspect aircraft and pilots for state or federal use. The agreement also allows for Region 1 pilots to fly state aircraft for fire suppression missions which enables our pilots to maintain needed currency.

Two national severity medium helicopters were hosted in the Region and assigned to the Beaverhead and Nez Perce National Forests. The helicopters contracted were Bell 204-B's. The helicopter assigned to the Beaverhead was contracted from River City Helicopters, Hayden lake, Idaho. The Forest provided personnel to fill a module the entire 60-day contract period. This helicopter spent 58 days on fires, 2 dys on presuppression, and flew 240.2 hours. The helicopter assigned to the Nez Perce was contracted from Idaho Helicopters, Boise, Idaho. The Forest provided a module by hiring and detailing for the 60-day contract period. The helicopter spent 42 days on fires, 17 days on presuppression, 1 day of unavailability, and flew 170.6 hours.

On October 16, a Lockheed P3 Orion aircraft, Tanker 24, owned and operated by Aero Union of Chico, California, crashed on the Bitterroot NF approximately 7 1/2 miles west of Florence, Montana. The aircraft hit a mountain during the descent phase of an instrument approach to Missoula, Montana. The aircraft was on a ferry flight from California to Missoula to support the fire suppression effort in Region 1. The crew--John Sieglinger, pilot in command, and Robert Shaw, second in command--were the only occupants and both were fatally injured.

On October 18 a Bell AH-1G Cobra experienced a mechanical tail rotor failure while dipping water for the Kilroy Fire and crashed into Lake Pend Oreille (Idaho). Though the helicopter sunk, both aircrew members survived thanks to the rescue efforts of people on the scene. The helicopter was later salvaged from the lake bottom.

AIRCRAFT ACCIDENT/INCIDENT REPORT SUMMARY

Incident Number	Date	Aircraft	Summary
R-1-06	2/14/91	Hiller 12E	Lack of Forest Dispatch knowledge and management
R-1-07	5/31/91	CE 206	Broken nosewheel bracket, Schafer Airstrip
R-1-08	5/23/91	BH 206B	Malfunction Primo MK III
R-1-09	6/3/91	Hughes 500C	Tail rotor chip light
R-1-10	5/13/91	Bell 206BIII	Longline hook failed to operate
R-1-11	6/27/91	SD3-30-V200	Gear warning light inoperative
R-1-12	7/9/91	SD3-30-V200	Turbine temperature inoperative
R-1-13	7/8/91	Baron	Failed alternator
R-1-14	7/5/91	SD3-30-V200	Overflight of duty time
R-1-15	7/9/91	SD3-30-V200	Jumper door handle "nothing to hold on to"
R-1-16	7/15/91	Bell 206 L-3	Worn swashplate bearings
R-1-17	7/13/91	Sherpa	No radio communication with helicopter over fire
R-1-18	7/21/91	Bell 204	Remote hook turned pulling out electrical plug
R-1-19	7/22/91	Bell 204	Pilot lifted up while person unloaded bag
R-1-20	7/22/91	V-107	Malfunction #2 ECA
R-1-21	7/22/91	SA 315B	Seat belt left outside door
R-1-22	7/23/91	SK 58T	Low oil pressure on #1 engine (indicated)
R-1-23	7/25/91	Bell 204B	Hail damage on the nose of aircraft
R-1-24	7/22/91	Vertol 107	Dip tank struck a tree while in flight
R-1-25	7/22/91	SA 315B Lama	Crewperson didn't hook up bungee cord
R-1-26	7/27/91	Bell 206 L-3	Engine chiplight
R-1-27	7/31/91	BH 412	Medivac of a nongovernment person
R-1-28	7/31/91	Bell 206B III	Inadvertent bucket and longline drop
R-1-29	7/29/91	Bell 206B III	Incident with Potential--main rotor blade strikes during long-line operation
R-1-30	8/1/91	Vertol 107	Longline dip tank and struck tree with tank
R-1-31	8/2/91	SA-315B	Generator failed due to fuse burning out
R-1-32	7/10/91	Beech A-36	Malfunctioning alternator system
R-1-33	7/18/91	Bell 204	Accidental release of water bucket
R-1-34	7/26/91	Bell 204B	Pilot exceeded duty day--8 minutes
R-1-35	8/15/91	DC4-G	Shut down #2 engine in flight--hole in piston
R-1-36	8/16/91	Bell 206L-3	Engine chip light
R-1-37	8/9/91	Cessna 210	Pilot not carded for model
R-1-38	7/29/91	Convair 580	Hydraulic press regulator failure

Incident Number	Date	Aircraft	Summary
R-1-39	8/17/91	Bell 206 BIII	Battery overtemp light
R-1-40	8/17/91	Cessna 206	Fluctuating engine power
R-1-41	8/18/91	Bell 206B III	Food container lids popped off
R-1-42	8/28/91	Cessna 182	Overflight night with passenger by 9 minutes
R-1-43	8/25/91	P2V-7	Landing gear failed to retract/engine failure
R-1-44	8/22/91	Bell 206 BIII	Generator failure
R-1-45	8/26/91	S-58T	Fuel truck rolled into tailboom pylon
R-1-46	8/23/91	BE 200	False fire warning light
R-1-47	8/28/91	SK-58T	Gate on swivel hook failed; lost load
R-1-48	8/28/91	Bell 212	Failure of fuel quality gage
R-1-49	9/12/91	BE 58P	Loss of turbocharger, power reduced to 20 MP
R-1-50	8/23/91	Bell 204	Hydraulic pressure light (press switch malfunction)
R-1-51	9/27/91	Bell 206B	Overflight twilight by 7 minutes
R-1-52	9/25/91	Bell 206B	N2 governor failure
R-1-01	10/16/91	P3A	Accident. Fatal crash into mountain during IFR approach
R-1-02	10/18/91	AH 1G Cobra	Accident. Apparent mechanical failure
R-1-03	10/03/91	Bell 205	Single engine with passenger past night cutoff
R-1-04	10/2/91	Bell 206B	Crack in mounting bracket, horizontal stabilizer
R-1-05	10/2/91	P2V-7	Relay failure of prop pump motor
R-1-06	10/2/91	P2V-7	Pin hole leak in #2 hydraulic line
R-1-07	10/6/91	Bell 205 A-1	Short in wire to low fuel light system
R-1-08	10/14/91	Bell 204B	Left front door opened in flight, broken window
R-1-09	10/16/91	Bell 206B	Dropped water bucket
R-1-10	10/13/91	Fuel Truck	Helicopter fuel truck driver exceeded duty day/driving limit
R-1-11	10/17/91	P2V	Engine problem and aborted load after takeoff
R-1-12	10/14/91	Bell 47 Soloy	Unauthorized flight into TFR
R-1-13	10/13/91	C-182	Entering TFR without clearance

RETARDANT PROGRAM

The Region agreed to test two new retardant products during the 1991 fire season in lieu of the dry powder/batch bags normally used at the Missoula tanker base. The two products--LV-R and MV-R--are both gum-thickened liquid concentrates produced by Monsanto. The LV stands for low viscosity and MV stands for medium viscosity.

These new retardants offer the advantages of a relatively simple mixing procedure along with the increased effectiveness of a thickened product. Field results at this point appear to be satisfactory. The Region will be storing 10,000 gallons of both products over the 1991-92 winter as a final portion of the evaluation.

The Region's five retardant base Value Analyses will be modified this winter in order to consider these new retardants during the award process for 1992.

Retardant Base	Gallons of Retardant Dropped
Missoula	233,500
Coeur d'Alene	72,900
Kalispell	167,350
Grangeville	196,000
West Yellowstone	193,650
BLM	
Billings	141,150
Lewistown	99,700
Total	1,104,250

ENGINE PROGRAM

The Engine Program continued to expand in the areas of production, service, and training. Production for 1991 exceeded all previous years, with 26 major projects being R-1 Forest Service, 16 for the BIA Billings Area, two for BIA Albuquerque Area, and one for R-2 Black Hills. Of the major projects, 19 were new construction, 22 units were completely refurbished, and four were retrofits from older models. During the year numerous minor repairs were completed by the program, and repair parts sent to participating units for installation.

Work progressed on the installation of an around-the-pump-type foam metering device on all units scheduled through the Engine Program, with a goal of having most Forest Service units equipped by FY 93. The BIA is providing funding for completion of the installations on their units in FY 92. Field reports indicate this device continues to be both effective and efficient.

A shop/service vehicle was obtained for year-around dispatch to incidents and agencies as needed, meeting 10 requests in FY 91. This vehicle is fully equipped to make any necessary repairs to the pumping units and is available on request or by resource order.

Training courses in water handling and fire engine use were conducted for the Beaverhead/Deerlodge Forests, Crow/Northern Cheyenne Agencies, Blackfeet/Ft. Peck/Rocky Boys/Ft. Belknap Agencies, Miles City BLM, Lewistown BLM and Flathead Agency. The courses were completed by 230 attendees.

An Advanced Water Handling course was completed in FY 91, and was first presented to a interagency group in South Dakota. This course covers high lift and complex pumping and tactical situations, and is being considered as a prerequisite for the position of Water Handling Specialist.

Other areas of involvement by Engine Program personnel included the evaluation of new engine related technology and equipment, numerous dispatches as Water Handling Specialists to incidents, providing technical assistance on water handling problems on controlled burns, and continued involvement with the BIA meeting their water-related equipment needs.

FIRELINE EXPLOSIVES USE

The fireline explosives (FLE) program continued to progress as part of an interagency effort dedicated to the national standardization of FLE operations. The National FLE committee (a FEWT subcommittee) met in November for the second year of a 3-year plan. The goal of this committee is to standardize all training and operational procedures. Jim Beck is working on the National Training Committee and Dave Hart is on the National Qualifications Committee.

One new product field evaluation was conducted in 1991. A group comprised of R-1 Forest Service and State of Washington DNR personnel evaluated an emulsion product submitted for testing by Ireco, Inc. Results were positive with further testing pending.

Reported FLE use on wildfire was limited to three incidents--9000 feet on the Pelican Fire in Yellowstone Park, 7000 feet on the Sylvanite Complex on the Kootenai and 1000 feet on the Priest Lake District of the Idaho Panhandle--for a total of 17,000 feet. The Avery District of the Idaho Panhandle reported using 2000 feet on prescribed fire.

Smokejumpers from the Aerial Fire Depot utilized FLE on several specialized assignments. A total of 40 trees were topped using FLE as part of wildlife tree improvement projects on the Idaho Panhandle and Deerlodge Forests. Six cases of FLE were used to destroy 11 cow carcasses in the Missouri River. This project was carried out in response to a request from the BLM and Montana State Department of Fish, Wildlife and Parks. Two thousand and two hundred feet of FLE were used to construct trail tread on the Flathead National Forest.

INTERAGENCY HOTSHOT CREW SUMMARY

IHC	Employment Dates	Days on Fire	Number of Fires
Bitterroot	6/17-11/1/91	81	15
Flathead	6/10-10/18/91	78	11
Helena	5/26-10/31/91	97	13
Lolo	6/17-9/14/91	64	17
St. Joe	6/3-10/29/91	86	14
Chief Mountain	4/4-10/25/91	85	11

A Regional activity review of the interagency hotshot program was conducted in June. The objectives of the review were to review national standards for interagency hotshot crews and their applicability to Region 1 and evaluate how we are meeting the standards and to what cost. The review found the crews doing an outstanding job in the area of workforce diversity and safety. Decreased budgets have presented several problems which are documented in the review. The IH crews will work on an action plan to resolve some of the issues of the review.

Bitterroot.--The season began with an early dispatch to Alaska, combined with the Helena IHC. During the summer, the crew broke into smokechaser units on three different fire assignments. The most continuous fire activity occurred in September and October which most fires being escaped prescribed burns. The crew

remained at full strength until termination on November 1. Crew diversity was 50/50. There were no lost time injuries with only six CA-1's for the entire season.

Flathead.--Two members of the Flathead Hotshots went to Washington D.C. to be recognized for bravery during lifesaving actions on the Dude Fire in June of 1990. Rod Goss, a squad leader and EMT and Paul Linse, the superintendent, were part of a group award that included members of the Zig Zag and Alpine Hotshots. The group was presented a Unit Award for Superior Service by both the Forest Service and the Department of Agriculture.

Foreman Don Rees detailed to the District as an engine foreman and Louis Hartjes detailed into the foreman job. While on I.A. standby in Yellowstone National Park, the Helena and Flathead were oriented to the Park's short haul helicopter insertion program. Members of both crews were able to experience being picked up by the Park's Lama on a 100 foot climbing rope and then let down on a ridge a mile away.

Crew diversity was 50/50. The crew experienced a number of non-lost time accidents such as sprains, colds, etc. One lost time accident occurred on the last fire of the season when a crew person was struck by a snag while on initial attack in the early (but dark) evening.

Helena.--The season began with an early season dispatch to Alaska, combined with the Bitterroot IHC. The crew was involved with "Long Line Insertion" training while on a fire at Yellowstone NF.
Crew diversity was 50/50. The crew had a safe, productive season, with only one lost time injury.

Lolo.--The Lolo IHC was again involved with the Wildland Firefighter Carbon Monoxide Exposure monitoring project. On the Pelican incident the Helena and Lolo IHC's were involved in a successful search and rescue operation for a lost 7 year old. Prior to and immediately following the fire season, the crew was involved in prescribed burning operations, miscellaneous district project work and initial attack firefighting. The crew's safety record was outstanding with no lost time injuries.

St. Joe.--The crew took on a new face this year with the appointment of Lynn Bornitz as the new foreman, three new squad bosses, and eight other new crew members. Unlike the last few seasons, this one started slowly, with a 9-day prescribed burning detail to the Avery R.D. in July providing our first taste of fire and smoke. Following a 2-week structure protection assignment at the University of Idaho's Taylor Ranch in August/September, fire activity gained momentum until peaking in mid-October.

Four lost time injuries were recorded--three of them occurring on the Thompson Creek Fire. Eleven of the original crew roster worked the entire season.

No vehicle accidents were incurred.

OTHER CREWS

The Montana and Idaho Indian Firefigher programs continue to provide many suppression and camp crews. The Trapper Creek and Anaconda Job Corps also actively participate in suppression and camp crew dispatches:

Bitterroot NF	Trapper Creek Job Corps (15 line crews, 4 camp crews)
Custer	86 MIF crew dispatches
Deerlodge	Anaconda Job Corps (7 line crews, 5 camp crews)
Idaho Panhandle	11 IIF crew dispatches

Lewis and Clark	144 MIF crew dispatches
Lolo	42 MIF crew dispatches
Nez Perce	11 IIF crew dispatches North Idaho Correctional Institute 20-person crew utilized on more than one occasion.

NORTHERN ROCKY MOUNTAIN AREA OVERHEAD TEAM DISPATCHES

Type I Dispatches

Team	Incident	Location	Dates
Meuchel	Bostwick	Gallatin NF	10/16-23/91
Harbour (R-5)	Burnette Peak	BLM - Lewistown	10/16-28/91
Hodge	Game Range	State of Montana	10/12-18/91
Denton (R-3)	Sylvanite Complex	Kootenai NF	10/17-25/91
Meuchel	Thompson Creek	Gallatin NF	7/18-29/91 (then Danforth's team took it over)

Type II Dispatches

West Zone

Bosworth	Hauser Lake Complex	State of Idaho	10/16-22/91
Cowin	Kilroy Bay	Idaho Panhandle NF	10/16-24/91
Spradlin/(Suenram)	Bonner County Complex	State of Idaho	10/17-21/91
Bosworth	Rackliff	Nezperce NF	10/1-7/91
Cowin	Lake Creek	Nezperce NF	8/22-29/91

Central Zone

McKee	Overwich II	Bitterroot NF	10/16-23/91
Danforth	Spruce Lake II	Kootenai NF	10/17-25/91
Gauger	Coffee Gulch/Upper Gird	Bitterroot NF	8/24-29/91
Gauger	Squaw Creek	State of Montana	10/1-9/91

East Zone

Greene	Medicine Tail Complex	BIA - Crow Agency	8/20-25/91
Alt	79 Trail	BLM - Lewistown	10/13-16/91
Alt	Pigeon Creek	Deerlodge NF	8/22-26/91
Alt	Holter Lake	Helena NF	4/4-7/91
Danforth	Pelican	NPS - Yellowstone NP	7/4-13/91
Kechter	Snowslide	Gallatin NF	8/25-31/91
Danforth	Robertson Draw	Custer NF	4/5-8/91
Danforth	Harrison	Lewis & Clark NF	8/25-9/2/91
Greene	Deerborn	State of Montana	10/16-18/91

SAFETY, HEALTH, AND WELLNESS

Standards for Survival Training for all **firesite** employees was implemented Regionwide. The training of instructors and numerous R-1 employees was under the direction of the Aviation and Fire Management Safety and Training Group. Over 5,000 employees, contractors, and interagency cooperators were provided the training. The program will continue through 1992.

Jerry Jeffries, AFM Safety Officer, works for and maintains liaison with Missoula Technology and Development Center (MTDC) in relation to Aviation and Fire Management safety and health projects. He is the project leader for the National Tractor Plow Fire Line Dozer Accident Analysis project. The objectives are to identify and recommmend corrective actions that will prevent entrapments and burn overs of equipment operators, swampers, dozer bosses, etc. A thorough study of personal protective equipment and clothing, training, tactics, state-of-the-art equipment and strategies are all inclusive.

Work began on a national video and written safety, health and wellness program to include the rewrite of the Health and Safety Code Handbook, national fire shelter developments, development and upgrading of personal protective equipment and clothing, foot care, administrative site safety and health inspections, Mountain driving techniques, smoke respirators, work crew orientation, and fire tool ergonomics.

Aviation and Fire Management provides representation for a national task force assigned to develop recommendations for the Chief and Staff suggesting the direction the safety and health program is to proceed toward the year 2000. This includes career development of safety and health technicians, specialists,and managers; and development of safety and health performance standards for managers.

MISSOULA FIRE TECHNOLOGY AND DEVELOPMENT CENTER

The Washington Office directed that we conduct a value analysis/value engineering on the MFTC plan. That was accomplished via a WO contract. The team (private contractor) made recommendations to trim costs and improve efficiencies. Some recommendations were incorporated into the redraft of the site plan.

We are negotiating with the National Weather Service concerning their need for expanded space at the AFD for their new radar system. They are now in the process of conducting an internal review of the proposal.

The Environmental Analysis and Decision Notice were completed for the MFTC.

An Environmental Analysis and Decision Notice for the noxious weed management of the MFTC site was also completed.

Design Standards and digitization of the site are now complete.

We have completed the reversion of the land on the west edge of the site from the County Airport back to the FS.

FIRE CACHE SUMMARY

From October 1, 1990 to September 30, 1991, the Region 1 Fire Cache shipped a total of 1,497,799 pounds (approximately 749 tons) of equipment to fill presuppression, replacement, and orders to actual incidents. Cost of items shipped was $9,858,107. This does not take into consideration credit issued for returned unused items or equipment to be refurbished. Total weight of shipment to incidents alone was 1,135,709 pounds (approximately 568 tons) for a cost of $7,765,133. Most shipments were issued to Region 1 fires, although we did support incidents in numerous other Regions.

Two materials handlers from the Missoula Cache were detailed to the BLM Cache in Fairbanks, Alaska, to assist in their firefighting efforts.

SMOKEJUMPER ACTIVITIES

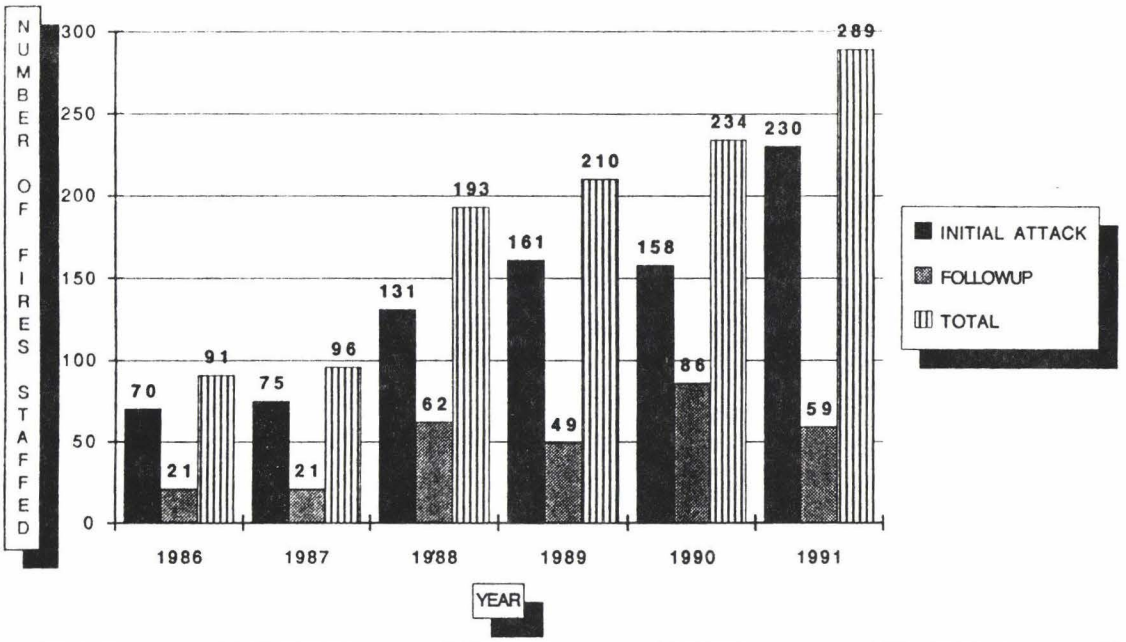
The 1991 season was filled with emotion, change, and challenge.

The Region suffered a great loss with the death of Bill Martin. On May 31, Bill was killed while making an evaluation jump of the Bureau of Land Management Ram-Air parachute system. This was the third jump related death in the last 52 years and 200,000+ jumps of the Smokejumper Program. The Washington Office has directed the Missoula Technology and Development Center to revisit the value analysis to determine whether further evaluation of the Ram-Air parachute system will continue.

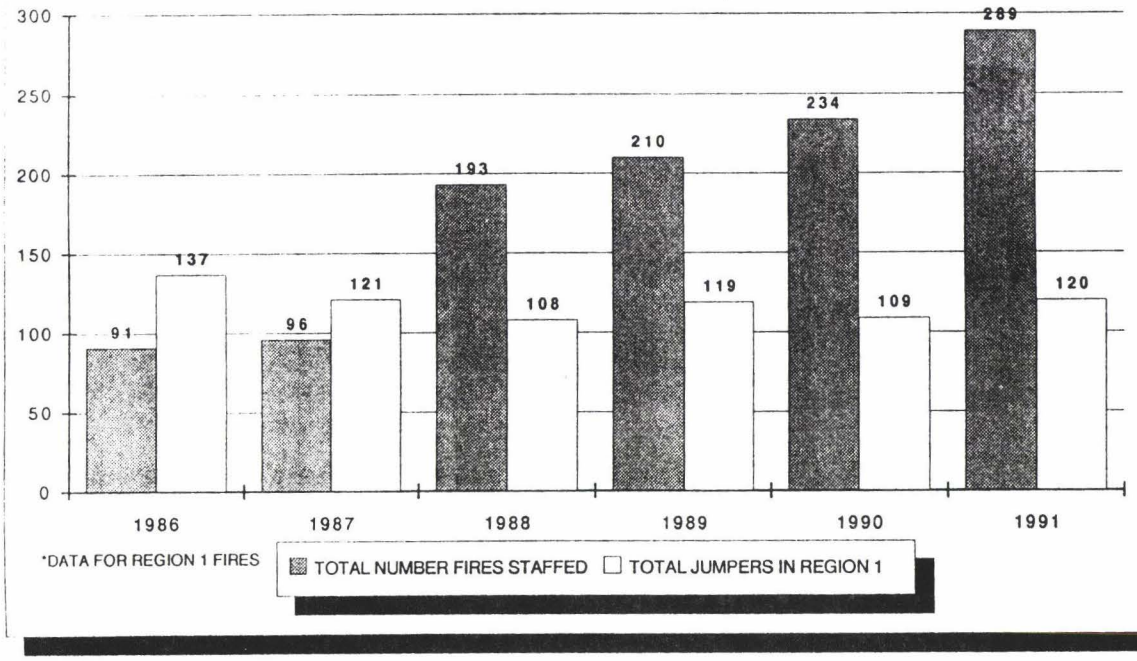
The new WCF aircraft assigned to the Region (reference Aviation Management Section) provided change and challenge to the Smokejumper Unit. After extensive training and operational evaluation, the new aircraft were found to be excellent as smokejumper platforms. The Region 1 Sherpa usage included: staffing 42 fires with 240 jumpers, dropping 600 proficiency jumps, ferrying 1 ground action fire, ferrying two booster jump crews, two rescue missions, and 10 ferry trips carrying 150 people. The DC-3 usage included: ferrying 452 fire passengers, dropping 356 fire and proficiency jumps, and hauling or dropping by paracargo 37,014 pounds of cargo.

The Missoula Smokejumper Unit performed over 5,000 hours of project work for nine Forests in Region 1. Project work included wildlife habitat improvement, fuels reduction, trail construction, crosscut saw maintenance and fire history studies.

REGION 1 FIRES STAFFED BY SMOKEJUMPERS



FIRES STAFFED VS JUMPER NUMBERS



Item	Home Region
1. Number of bases	3
2. Number of jumpers	120
3. Number of fires attacked or jumped a. Initial Attack b. Followup c. Total	 230 59 289
4. Number of jumps to fire	1,058*
5. Person days on fire	5,212

*Includes 50 fire jumps from the Silver City Spike Base, Region 3.

AFFIRMATIVE ACTION

New Affirmative Action reporting requirements for A&FM were implemented in FY 91. A summary of our PATCO categories and FY 91 goals are:

Professional	1 Woman
	0 Minority (Represented)
Administrative	0 Women (Represented)
	0 Minority (Represented)
Technical	1-3 Women
	0 Minority (Represented)

Recruitment/Outreach Activities:

Smokejumper recruitment in FY 91 included a focused effort with the Interagency Hotshot Crews. The AFD hosted an Orientation Day to acquaint members of the Hotshot Crews with Smokejumping. We also began a new "Adopt A Rookie" Program. This consisted of organized mentoring of the new rookies to better equip them for the physical, psychological, and technical aspects of the Smokejumping program.

Native American recruitment involved site visits to several reservations in New Mexico, Montana, North Dakota, and South Dakota. We also continue our participation in events such as the InterTribal Youth Practicum held in Clark Fork, Idaho and the Multi-High School Career Day in Coeur d'Alene.

A&FM co-sponsored the pilot program, "Native Americans and Natural Resources - Career Visions", with Intermountain Research Station, the University of Montana, and the Salish Kootenai College. Over fifty students attended the three day workshop that highlighted career and educational opportunities for Native American youth.

Hispanic recruitment included a booth at the New Mexico State University Career Day (sponsored by the NMSU Hispanic Affairs Program) that reached a large number of Hispanics. Over 200 recruiting packages were distributed at Interagency meetings in R-3. As a result, five rookie candidates were from R-3, of which three were minorities.

Rookie Smokejumper FY 91 Recruitment Statistics

199 Applications--116 Qualified (10 Women and 27 Minorities)

40 Job Offers Made--(7 To Women and 15 To Minorities)

30 Applicants Accepted & Showed

26 Completed Rookie Training--(1 Woman and 10 Minorities)

This year we created an Aviation and Fire Management Civil Rights Committee. The Committee will assist the Director and Staff in all aspects of the Civil Rights Program and will present a coordinated effort in formulating goals as outlined in "Toward a MultiCultural Organization".

To demonstrate our commitment to the Hispanic employees in A&FM, we have created a Hispanic Special Emphasis Manager position. This SEM will also serve on the AFM Civil Rights Committee, along with the Native American & Federal Women's Special Emphasis Managers.

AIRCRAFT USE REPORT

WORKSHEET A DATE OF RUN:110691

INCLUSIVE DATES: 10/01/90-09/30/91 SUPPLYING UNIT: REGION 1 USER UNIT: ALL

	HOURS FLOWN			
	FS-OWNED	CONTRACT	TOTAL	HELICOPTER
AVIATION MANAGEMENT ACTIVITIES				
1. AIRCRAFT, PILOT, UNIT INSPECTIONS	50.60	26.40	77.00	1.80
2. PILOT TRAINING AND PROFICIENCY	167.20	1.92	169.12	.60
3. AIRCRAFT MAINTENANCE-TEST FLIGHT	37.30	2.20	39.50	.00
4. OTHER	5.70	6.10	11.80	2.00
TOTAL	**260.80**	**36.62**	**297.42**	**4.40**
TOTAL HOURS 301.82				
FIRE SUPPRESSION ACTIVITIES				
5. PERSONNEL TRANSPORT	122.80	1146.67	1269.47	520.00
6. RECONNAISSANCE	36.80	618.40	655.20	189.30
7. DETECTION	39.50	1411.10	1450.60	10.00
8. AIR ATTACK	.00	198.60	198.60	6.60
9. LEAD PLANE	217.00	51.80	268.80	.00
10. RETARDANT/WATER DELIVERY	.00	279.36	279.36	246.20
11. SMOKEJUMPER TRANSPORT	247.70	282.20	529.90	.00
12. HELITACK	.00	.00	.00	145.80
13. RAPPELLER TRANSPORT	.00	.00	.00	.00
14. EQUIPMENT/SUPPLY TRANSPORT	56.40	54.40	110.80	305.00
15. INFRARED PHOTOGRAPHY	.00	1.60	1.60	35.10
16. AERIAL IGNITION	.00	.00	.00	12.10
17. OTHER	4.50	5.90	10.40	5.10
TOTAL	**724.70**	**4050.03**	**4774.73**	**1475.20**
TOTAL HOURS 6249.93				
OTHER ACTIVITIES				
18. PERSONNEL TRANSPORT	229.90	316.20	546.10	225.30
19. SURVEY/OBSERVATION	19.20	533.40	552.60	75.40
20. FERRY	32.00	33.24	65.24	75.50
21. ANIMAL/WILDLIFE COUNT	.00	124.70	124.70	1.70
22. SEARCH AND RESCUE	.00	2.90	2.90	4.90
23. LAW ENFORCEMENT/INVESTIGATIONS	.00	2.40	2.40	1.40
24. RESEARCH	.00	.00	.00	.00
25. AIR QUALITY MONITORING	.00	.00	.00	1.20
26. FIRE PREVENTION	.00	13.90	13.90	.00
27. PRESCRIBED BURNING	.00	1.70	1.70	11.10
28. CARGO TRANSPORT HAZARDOUS MATERIALS	.00	.00	.00	2.10
29. CARGO TRANSPORT	7.40	8.40	15.80	91.80
30. AERIAL PHOTOGRAPHY	35.90	10.50	46.40	10.60
31. INFRARED PHOTOGRAPHY	.00	.00	.00	3.00
32. AERIAL IGNITION	.00	.00	.00	285.80
33. ACCIDENT INVESTIGATIONS	.00	.00	.00	.00
34. OTHER	2.10	7.10	9.20	79.60
TOTAL	**326.50**	**1054.44**	**1380.94**	**869.40**
TOTAL HOURS 2250.34				
COLUMN TOTAL	**1312.00**	**5141.09**	**6453.09**	**2349.00**
GRAND TOTAL HOURS 8802.09				

NUMBER OF PASSENGERS TRANSPORTED

	FIXED WING	HELICOPTER
FIRE	7890	3302
OTHER	2063	1588

CARGO AND MATERIAL DROPPED

1. PARACARGO	118087
2. AIR FREIGHT	422747
3. SLING	787689
4. HELITORCH	141350
5. RETARDANT	665052
6. WATER	169924

WORKSHEET B DATE OF RUN:110691

INCLUSIVE DATES: 10/01/90-09/30/91 SUPPLYING UNIT: REGION 1 USER UNIT: ALL

	HOURS FLOWN			
	FS-OWNED	CONTRACT	TOTAL	HELICOPTER
OTHER ACTIVITIES				
1. AVIATION AND FIRE MANAGEMENT	174.30	151.67	325.97	426.70
2. ADMINISTRATIVE MANAGEMENT	21.00	98.10	119.10	15.70
3. ADMINISTRATIVE SERVICES	.00	1.60	1.60	2.00
4. CIVIL RIGHTS	.00	.00	.00	.00
5. COMPUTER SERVICES	.00	.00	.00	12.00
6. ENGINEERING	10.30	29.40	39.70	83.40
7. EXPERIMENT STATIONS	23.30	17.10	40.40	.90
8. FISCAL AND ACCOUNTING MANAGEMENT	1.50	4.50	6.00	.00
9. FOREST PEST MANAGEMENT	5.10	297.50	302.60	.00
10. HUMAN RESOURCE PROGRAMS	.00	.00	.00	.00
11. LANDS	.00	17.50	17.50	2.80
12. LAND MANAGEMENT PLANNING	.00	5.20	5.20	6.50
13. LAW ENFORCEMENT	.00	7.60	7.60	6.70
14. MINERALS AND GEOLOGY	1.40	.00	1.40	.00
15. OFFICE OF GENERAL COUNCIL	.00	.00	.00	.00
16. OFFICE OF INFORMATION	3.40	12.00	15.40	.00
17. PERSONNEL MANAGEMENT	.00	.00	.00	.00
18. PROGRAM PLANNING AND BUDGET	3.20	.00	3.20	.00
19. RANGE MANAGEMENT	.60	2.20	2.80	7.90
20. RECREATION MANAGEMENT	11.50	32.90	44.40	61.20
21. REGIONAL FORESTER/FOREST SUPERVISOR	25.00	67.50	92.50	.00
22. STATE AND PRIVATE FORESTRY	.00	.00	.00	.00
23. TIMBER MANAGEMENT	25.50	37.60	63.10	83.50
24. WATERSHED AND AIR MANAGEMENT	5.40	6.10	11.50	79.60
25. WILDLIFE MANAGEMENT	8.00	32.80	40.80	51.60
26. OTHER AGENCIES AND COOPERATORS	7.00	230.37	237.37	22.20
27. OTHER	.00	2.80	2.80	6.70
TOTAL	**326.50**	**1054.44**	**1380.94**	**869.40**
TOTAL HOURS 2250.34				

NUMBER OF PASSENGERS TRANSPORTED

Fixed Wing - 1878
Helicopter - 1587

WORKSHEET C

DATE OF RUN: 11/06/91

INCLUSIVE DATES: 10/01/90-09/30/91

SUPPLYING UNIT: REGION 1

USER UNIT	AVIATION ACTIVITIES	FIXED WING FIRE ACTIVITIES	OTHER ACTIVITIES	AVIATION ACTIVITIES	HELICOPTER FIRE ACTIVITIES	OTHER ACTIVITIES
AK	.00	1.10	.00	.00	.00	.00
BIA	.00	25.44	.00	.00	14.10	.00
BLM	11.10	122.62	8.80	.00	44.20	.00
ID	.00	26.20	98.90	.00	2.90	6.00
MT	.00	67.04	129.67	.00	64.80	16.20
NPS	.00	86.46	.00	.00	12.50	.00
NV	6.10	58.50	.00	.00	.00	.00
OTHR	.00	6.80	.00	.00	.00	.00
WA	.00	6.97	.00	.00	.00	.00
WY	.00	2.00	.00	.00	.00	.00
0102	2.90	464.43	1.10	.00	31.40	.00
0103	.90	263.32	5.98	.00	391.90	10.90
0104	5.80	332.77	45.50	.00	104.40	258.40
0105	2.00	263.46	36.50	1.80	88.10	45.40
0108	3.50	49.20	46.40	.00	10.40	3.50
0109	.00	71.30	5.20	.00	18.90	.00
0110	5.40	241.44	93.70	2.00	63.50	124.70
0111	.42	934.11	21.92	.00	.00	.00
0112	.00	26.18	10.80	.00	.00	8.30
0114	2.20	123.37	24.30	.40	45.70	141.00
0115	.00	360.17	35.27	.00	156.30	73.80
0116	.00	148.87	48.40	.00	53.10	35.60
0117	.40	671.76	67.07	.20	336.70	77.50
0151	.00	.00	9.50	.00	.00	.00
0152	138.70	84.46	121.20	.00	.00	2.80
0156	6.20	13.00	472.20	.00	.00	.00
0203	.00	37.36	2.30	.00	.00	.00
0214	.00	9.10	.00	.00	.00	.00
0231	.90	.00	3.90	.00	.00	.00
0301	.00	.80	4.20	.00	.00	.00
0302	.00	2.50	.00	.00	.00	.00
0305	.00	2.10	.00	.00	.00	.00
0306	.00	44.10	.00	.00	.00	.00
0312	.00	8.90	.00	.00	.00	.00
0316	.00	3.10	.00	.00	.00	.00
0402	.00	4.27	.93	.00	.00	.00
0403	.00	10.42	.00	.00	.00	.00
0406	.00	4.00	.00	.00	.00	.00
0412	.00	40.64	1.13	.00	2.30	.00
0413	.00	48.04	.67	.00	.00	.00
0415	.00	15.50	.00	.00	.00	.00
0460	.00	1.20	.90	.00	.00	.00
0514	.00	8.10	.00	.00	.00	.00
0601	.00	4.10	.00	.00	.00	.00
0606	.00	13.90	.00	.00	.00	.00
0608	.00	6.30	.00	.00	34.00	64.40
0614	.00	13.60	.00	.00	.00	.00
0616	.00	16.33	.00	.00	.00	.00
0617	.00	20.10	.00	.00	.00	.00
0618	.00	5.00	.00	.00	.00	.00
0627	1.10	.00	.00	.00	.00	.00
1001	2.10	.00	.00	.00	.00	.00
1301	.00	.00	4.60	.00	.00	.00
1302	103.90	3.00	35.30	.00	.00	.00
1382	3.80	1.30	24.40	.00	.00	.00
2220	.00	.00	20.20	.00	.00	.90
TOTAL	**297.42**	**4774.73**	**1380.94**	**4.40**	**1475.20**	**869.40**

HELICOPTER USE, 1/1/91-12/31/91

SUPPLY UNIT	MODEL	FAA NO	TOTAL CHARGES	OVERNIGHT CHARGES	SERV-ICE TRUCK MILES	SERVICE TRUCK CHARGES	OTHER CHARGES	GRAND-TOTAL
IPF	AS-350-D	N3598D	49,70390	1,452.00	2,352	1,411.20	2,470.00	55,037.10
	H-500C	N9186F	66,363.90	1,584.00	5,051	4,293.35	5,404.50	77,645.75
	H-500D	N622PB	130,368.00	2,772.00	9,834	8,358.90	12,008.84	153,507.74
	206B-III	N1087L	10,305.00	924.00	527	316.20	1,704.00	13,249.20
		N1087N	9,000.00	858.00	450	296.25	1,131.00	11,285.25
		N53MA	56,665.80	528.00	4,082	2,821.45	3,247.00	63,262.25
	206L-III	N206LB	49,680.00	1,056.00	2,570	1,542.00	4,173.00	56,451.00
TOTAL			**372,086.60**	**9,174.00**	**24,866**	**19,039.35**	**30,138.34**	**430,438.29**
CWF	206B-III	N27637	105,161.90		5,183	2,332.35	2,877.63	110,371.88
TOTAL			**105,161.90**		**5,183**	**2,332.35**	**2,877.63**	**110,371.88**
FNF	206B-III	N49573	116,094.40	1,056.00	4,391	3,293.25	122.86	120,320.79
		N97493	126,106.89	5,969	4,476.75		891.00	131,474.64
	47G-3B-2	N7887S	16,254.00	396.00	422	214.35	392.25	17,256.60
TOTAL			**258,455.29**	**1,452.00**	**10,782**	**7,984.35**	**1,160.39**	**269,052.03**
LCF	H-500D	N58288	1,087.80		76	34.20	75.00	1,197.00
	206B-III	N5001K	106,175.80	4,356.00	4,940	2,886.00	1,136.00	114,553.80
TOTAL			**107,263.60**	**4,356.00**	**5,016**	**2,920.20**	**1,211.00**	**115,750.80**
NPF	OTHER	N1043T	21,578.40	132.00	1,220	1,586.00		23,296.40
	206B-III	N1087N	54,785.00	2,442.00	2,597	1,168.65	75.00	58,470.65
		N2061J	20,176.00	792.00	404	242.40	1,070.70	20,139.70
		N39102	2,923.80		0		174.30	2,749.50
	206L-III	N7061E	215,900.30	7,062.00	3,802	2,281.20	1,825.25	227,068.75
TOTAL			**315,363.50**	**10,428.00**	**8,023**	**5,278.25**	**655.25**	**331,725.00**
RO AFM	206B-III	N38MA	101,163.40	3,168.00	3,705	2,223.00	1,488.88	108,043.28
		N43MA	16,178.00	792.00	1,120	672.00	2,244.44	19,886.44
		N47MA	170,652.30	7,128.00	6,346	3,888.85	5,150.00	186,819.15
TOTAL			**287,993.70**	**11,088.00**	**11,171**	**6,783.85**	**8,883.32**	**314,748.87**
GRAND TOTAL			**1,446,324.59**	**36,498.00**	**65,041**	**44,338.35**	**44,925.93**	**1,572,086.87**

PERSONNEL EMPLOYED ON WILDFIRE PRESUPPRESSION AND SUPPRESSION ACTIVITIES

FS-5100-8

Item	Sub-Total	Total
1. Regular appointed personnel		
a. Full-time fire management (20 pay periods or more)	155	
b. Part-time fire management	184	
c. Others used on presuppression sometime during year	143	
d. Others used on suppression	729	
e. Total (a + b + c + d)		1211
2. Seasonal or short-term personnel		
a. Regular fire control (crews, firefighters, patrol, lookouts, etc.)	598	
b. Others (BD, KV, BR, R&T, etc.) who spent some time on fire control work	1169	
c. Emergency firefighters	418	
d. Total (a + b + c)		2185
3. Total number of casuals employed on fire suppression (Each reemployment counts as an employment)		6311
4. Number of casuals (included in Item 3) employed for first time (Ranger's estimate is adequate)	1138	
5. GRAND TOTAL (1e + 2d + 3)		9707

LAND OWNERSHIP PROTECTION REPORT

(Summary of acres by states)

	INSIDE FOREST SERVICE PROTECTION BOUNDARIES							
	PROTECTED BY THE FOREST SERVICE							
	State and Private Land *(Include county and municipal land)*							
STATE	Fee Basis	Offset Basis	Reimburse-ment Suppression Costs Only	Without Reimburse-ment	Other Federal Land	National Forest Land	Total	National Forest Land Protected by Others
MONTANA	1,509,908		10,443		1,239,166	15,445,116	18,204,633	1,649,024
IDAHO	120,008	262,213			62,423	6,768,536	7,213,180	398,348
WASHINGTON						118,794	118,794	
NORTH DAKOTA						1,105,789	1,105,789	
SOUTH DAKOTA						228,643	228,643	73,535
TOTAL	1,629,916	262,213	10,443		1,301,589	23,666,878	26,871,039	2,120,907

LAND OWNERSHIP PROTECTION REPORT

(Summary of acres by states)

	INSIDE FOREST SERVICE PROTECTION BOUNDARIES							
	PROTECTED BY THE FOREST SERVICE							
	State and Private Land *(Include county and municipal land)*							
STATE	Fee Basis	Offset Basis	Reimburse-ment Suppression Costs Only	Without Reimburse-ment	Other Federal Land	National Forest Land	Total	National Forest Land Protected by Others
MONTANA								
Beaverhead	46,663				958,028	1,953,296	2,957,987	195,154
Bitterroot	127,623					1,114,373	1,241,996	
Custer			9,333			553,069	562,402	599,014
Deerlodge	61,137				94,278	1,047,355	1,202,770	176,174
Flathead	128,823		1,110			2,185,177	2,315,110	168,852
Gallatin	395,445				18,571	1,736,112	2,150,128	
Helena	96,418				71,022	976,722	1,144,162	21,605
Idaho Panhandle						28,496	28,496	
Kootenai	187,655				242	2,195,405	2,383,302	187,866
Lewis & Clark	59,878				15,010	1,724,750	1,799,638	118,635
Lolo	406,266				82,015	1,930,361	2,418,642	181,724
Total	1,509,908		10,443		1,239,166	15,445,116	18,204,633	1,649,024
IDAHO								
Bitterroot	52					463,984	464,036	
Clearwater	67,417					1,637,847	1,705,264	176,243
Idaho Panhandle	52,539	222,105			38,151	2,346,970	2,659,765	222,105
Kootenai						50,384	50,384	
Nez Perce		40,108			24,272	2,269,351	2,333,731	
Total	120,008	262,213			62,423	6,768,536	7,213,180	398,348